

Applicant: Williams et al.
For: MOLECULAR RECOGNITION SENSOR SYSTEM

1 1. A molecular recognition sensor system comprising:
2 a resistive sensor including a semiconductive polymer film which
3 swells when exposed to an analyte and interferents;
4 a molecular imprinted resistive sensor including a semiconductive
5 polymer film imprinted with the analyte which thereby swells when exposed to interferents;
6 and
7 a circuit connected to the resistive sensor and the molecular
8 imprinted resistive sensor for detecting a change in the resistance of the resistive sensor
9 when exposed to the analyte and the interferents, the change in the resistance of the
10 molecular imprinted resistive sensor when exposed to the analyte and interferents, and for
11 subtracting the change in resistance of the molecular imprinted resistive sensor from the
12 change in resistance of the resistive sensor to reduce the effect of any interferents on the
13 change in resistance of the resistive sensor thereby determining the presence and
14 concentration of the analyte.

1 2. The sensor system of claim 1 further including a resistive sensor and
2 molecular imprinted resistive sensor pair for each analyte of interest.

1 3. The sensor system of claim 1 in which the polymer film of the resistive
2 sensor includes carbon.

1 4. The sensor system of claim 1 in which the polymer film of the molecular
2 imprinted resistive sensor includes carbon.

1 5. The sensor system of claim 1 in which the polymer film of the resistive
2 sensor includes copper.

1 6. The sensor system of claim 1 in which the polymer film of the molecular
2 imprinted resistive sensor includes copper.

1 7. The sensor system of claim 1 in which the circuit is connected to an analog
2 to digital converter.

1 8. The sensor system of claim 7 in which the analog to digital converter is
2 interfaced with a computer having software to read resistance.

055455-091301
T08T60

09954655-093601
FOR 60"

1 9. A method of determining the presence and concentration of an analyte, the
2 method comprising:
3 forming a resistive sensor with a semiconductive polymer film
4 which swells when exposed to the analyte and interferents;
5 imprinting a semiconductor polymer film with an analyte forming a
6 molecular imprinted resistive sensor which swells when exposed to interferents;
7 detecting a change in the resistance of the resistive sensor when
8 exposed to the analyte and the interferents and the change in the resistance of the molecular
9 imprinted resistive sensor when exposed to the analyte and interferents; and
10 subtracting the change in resistance of the molecular imprinted
11 resistive sensor from the change in resistance of the resistive sensor to reduce the effect of
12 any interferents on the change of resistance of the resistive sensor thereby determining the
13 presence and concentration of the analyte.

1 10. The method of claim 9 in which the polymer film of the resistive sensor
2 includes carbon.

1 11. The method of claim 9 in which the polymer film of the molecular imprinted
2 resistive sensor includes carbon.

1 12. The method of claim 9 in which the polymer film of the resistive sensor
2 includes copper.

- 1 13. The method of claim 9 in which the polymer film of the molecular imprinted
2 resistive sensor includes copper.

0954655 091801
" 5594560
T08T60"